

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE FIRST QUARTER 2003

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

Fused Aluminum Oxide

During the first quarter of 2003, one fused aluminum oxide production plant was on strike the entire quarter. This left only one company with one plant operating in Canada producing fused aluminum oxide. The total production during the first quarter of 2003 was 5,000 tons of regular-grade crude fused aluminum oxide with an estimated value of \$1.4 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide for the year through February 2003 were 13,200 metric tons valued at \$4.1 million, or an average of \$307 per ton. About 50% of the imports came from China, 37% from Venezuela, 12% from Canada, and 1% from other countries. Imports of crude fused aluminum oxide from China have been rising, but some of the imports may not be abrasive-quality material.

U.S. imports of refined and ground fused aluminum oxide in the first two months of 2003 reached 10,300 tons valued at \$6.5 million, or an average of \$634 per ton. The top five sources of the refined and ground imports were China (67%), Germany (12%), Austria (8%), Brazil (6%), and France (3%). Low-cost imports of fused aluminum oxide grain from China also have increased in recent years. The imports, however, reportedly include refractory-grade material as well as abrasive grain. U.S. exports of fused aluminum oxide through February 2003 were 1,780 tons. The exports were valued at \$4.7 million, or \$2,660 per ton. Germany received 37% of the exports that were shipped, Canada received 33%, and Mexico received 11%.

The Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS). All of the NDS

aluminum oxide, however, has been authorized by law for disposal. During the first quarter of 2003, the Department of Defense reported sales of 20 tons of fused aluminum oxide abrasive grain valued at \$9,900. At the end of the quarter, NDS reported that 16,000 tons of fused aluminum oxide abrasive grain with an estimated value of \$7.5 million remained in the stockpile. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2003). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain will be sold by the end of 2004.

Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the first quarter of 2003 was 10,000 tons of abrasive-grade silicon carbide with an estimated value of \$5.8 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through February 2003 were 22,300 tons valued at \$7.6 million; imports from China alone were 20,700 tons valued at \$6.1 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$884 per ton; the average price of Chinese crude was \$295 per ton. U.S. imports of refined and ground silicon carbide for the same period were 4,540 tons valued at \$4.8 million, or an average of \$1,070 per ton. During the period, China accounted for 93% of the crude material and 50% of the refined and ground material.

U.S. exports of crude silicon carbide through February 2003 were reported to be 76 tons with a value of \$497,000. Exports of refined and ground silicon carbide were 2,080 tons valued at \$1.3 million. About 80% of the crude material was shipped to Switzerland, Japan, and the United Kingdom in decreasing order. Most of the refined material went to Canada, Mexico, and Australia in decreasing order.

The NDS has sold all of the silicon carbide in the stockpile, and no further stockpiling is anticipated.

Metallic Abrasives

Metallic abrasives information was collected from 12 companies operating 14 U.S. plants. During the first quarter of 2003, six companies produced 54,000 tons of steel shot and grit, an increase relative to the same period in 2002. At least one of the companies produced shot and grit from reclaimed material. Total first quarter production was valued at \$24.6 million, or an average of \$455 per ton. Total annual estimated output in 2003 is expected to be 216,000 tons valued at \$98.4 million; 2002 output was 217,000 tons valued at \$97.4 million.

Shipments of steel shot and grit in the first quarter were 53,900 tons valued at \$24.9 million, or an average of \$462 per

ton. Shipments during the first quarter of 2002 were 53,500 tons valued at \$24.3 million for an average of \$454 per ton.

First quarter production of other types of metallic shot and grit (primarily cut wire shot) was 152 tons valued at \$502,000. Six companies produced shot.

Imports of all types of metallic shot and grit through February 2003 were 2,030 tons valued at \$1.2 million for an average of \$594 per ton. Canada was the largest supplier, accounting for 68% of the tonnage imported.

Exports of all types of metallic abrasives through February 2003 were 3,870 tons valued at \$2.2 million, or an average of \$577 per ton. Shipments to Canada accounted for 57% of the exports; an additional 34% was shipped to Mexico.

TABLE 1
MANUFACTURED ABRASIVES¹

(Metric tons, unless otherwise specified)

Source and product	2002								2003	
	First quarter		Second quarter		Third quarter		Fourth quarter		First quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: ²										
Silicon carbide ³	10,000	\$5,700	10,000	\$5,300	10,000	\$5,300	10,000	\$5,000	10,000	\$5,800
Crude aluminum oxide, regular-grade	5,000	1,400	5,000	1,400	5,000	1,400	10,000	2,600	5,000	1,400
United States, production:										
Steel shot and grit	52,900	23,200	53,700	24,000	57,400	25,900	53,400	24,300	54,000	24,600
Other shot and grit ^{e, 4}	262	856	281	901	267	886	248	831	152	502
Total	53,200	24,100	54,000	24,900	57,700	26,800	53,700	25,200	54,200	25,100
United States, shipments:										
Steel shot and grit	53,500	24,300	56,400	26,500	57,900	27,000	52,800	24,700	53,900	24,900
Other shot and grit ^{e, 4}	265	874	284	999	257	941	256	940	279	1,260
Total	53,800	25,200	56,700	27,500	58,200	27,900	53,100	25,600	54,200	26,200

^eEstimated.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

³Includes materials for metallurgical uses and other applications.

⁴Includes cut wire shot and reclaimed shot and grit from primary producers.